

In the Claims:

Claims 1 to 31 (canceled).

Please enter claims 32 to 51.

1 **32.** (new) A gas sensor for sensing a gas or gas composition at
2 high temperatures, said gas sensor comprising a substrate
3 (1) having a sensor carrier section with a tip (10) and a
4 conductor carrier section (9) connected to said sensor
5 carrier section opposite said tip (10), said sensor carrier
6 section having zones with varying heat dissipations, a gas
7 sensor function layer (4) supported by said sensor carrier
8 section of said substrate (12) next to said tip (10), an
9 electrical heater (6) supported by said sensor carrier
10 section in a position for heating said gas sensor function
11 layer (4), electric power supply conductors (2) supported
12 on said conductor carrier section (9) of said substrate (1)
13 and electrically connected to said electrical heater (6),
14 said electrical heater (6) comprising heater sections
15 having different heating resistance values which depend on
16 a spacing between any particular heater section and said
17 tip (10) of said sensor carrier section, said different
18 heating resistance values generating varying amounts of
19 heat for compensating said varying heat dissipations, said
20 gas sensor further comprising at least one temperature
21 sensing conductor path (12) electrically connected to said
22 electrical heater (6) at least at one contact point,
23 wherein said at least one contact point between said

electrical heater (6) and said temperature sensing conductor path (12) is positioned within said sensor carrier section for measuring an operating temperature of said sensor carrier section to provide a closed loop control signal for said electrical heater to maintain said operating temperature constant throughout said gas sensor function layer.

33. (new) The gas sensor of claim 32, wherein said electrical heater (6) comprises two meandering heater paths (6A, 6B) and an intermediate heater portion (6C) positioned next to said tip (10), said intermediate heater portion electrically connecting said two meandering heater paths (6A, 6B) in series with each other, said meandering heater paths (6A, 6B) having amplitudes forming said heater sections, and wherein said amplitudes vary in their size between said conductor carrier section (9) and said tip (10) depending on said spacing between any particular heater section formed by a respective amplitude, and said tip (10).

34. (new) The gas sensor of claim 33, wherein said amplitudes of said meandering heater paths diminish toward said tip (10).

35. (new) The gas sensor of claim 32, wherein said electrical heater (6) comprises a heater path having a path width (b) along said heater sections, said path width (b) varying

depending on said spacing between any particular heater section and said tip (10).

36. (new) The gas sensor of claim 35, wherein said path width (b) increases toward said tip (10).

37. (new) The gas sensor of claim 32, wherein said electrical heater (6) comprises a heater path having a path length along said heater sections and a path width (b), and wherein said path length and said path width (b) both vary depending on said spacing between any particular heater section and said tip (10).

38. (new) The gas sensor of claim 37, wherein said path length diminishes from section to section of said heater sections toward said tip (10), and wherein said path width (b) increases from section to section of said heater sections toward said tip (10).

39. (new) The gas sensor of claim 32, wherein said gas sensor function layer (4) has a length (L) toward said tip (10) and wherein said at least one contact point is located along said length (L) of said gas sensor function layer (4) and below said gas sensor function layer (4).

40. (new) The gas sensor of claim 32, comprising at least two contact points (12A' and 12B') between said temperature sensing conductor path (12) and said electrical heater (6)

4 for selecting a different resistance value from at least
5 two such different resistance values of said electrical
6 heater (6).

1 41. (new) The gas sensor of claim 32, wherein said sensor
2 carrier section has two regions (G + L) forming a
3 respective sensor carrier length (G + L) between said tip
4 (10) and said conductor carrier section (9), said sensor
5 carrier length (G + L) being longer than said region (L)
6 with a respective length (L) of said gas sensor function
7 layer (4), and wherein said electrical heater (6) is
8 arranged along said sensor carrier length (G + L).

1 42. (new) The gas sensor of claim 32, wherein said electrical
2 heater (6) comprises an intermediate heater portion (6C)
3 and at least two meandering heater paths (6A, 6B)
4 electrically connected in series with each other by said
5 intermediate heater portion (6C) to form a series heater
6 circuit which is connected to said electric power supply
7 conductors (2) secured to said conductor carrier section
8 (9), each of said meandering heater paths (6A, 6B) having
9 a plurality of said heater sections which meander with
10 diminishing amplitudes.

1 43. (new) The gas sensor of claim 42, wherein said diminishing
2 amplitudes are largest next to said conductor carrier
3 section (9) and smallest next to said tip (10) of said
4 sensor carrier section.

1 44. (new) The gas sensor of claim 32, wherein said gas sensor
2 function layer (4) is secured to one side or surface of
3 said sensor carrier section of said substrate (1), and
4 wherein said electrical heater (6) is attached to an
5 opposite side or surface of said sensor carrier section of
6 said substrate (1) in said position for heating said gas
7 sensor function layer (4).

1 45. (new) The gas sensor of claim 32, comprising two
2 temperature sensing conductor paths (12A, 12B) and two
3 respective contact points (12A', 12B') between said
4 electrical heater (6) and said temperature sensing
5 conductor path (12A, 12B) and wherein each temperature
6 sensing conductor path (12A, 12B) is connected to a
7 respective contact point (12A', 12B') of said two contact
8 points forming voltage taps.

1 46. (new) The gas sensor of claim 45, wherein each contact
2 point (12A, 12B) is connected to a respective junction
3 between said electrical heater 6 and said electric power
4 supply conductors (2).

1 47. (new) The gas sensor of claim 45, wherein each contact
2 point (12A', 12B') is connected to a respective voltage tap
3 positioned between ends of said electrical heater (6).

1 **48.** (new) The gas sensor of claim 45, wherein said electrical
2 heater (6) comprises an intermediate heater portion (6C)
3 and at least two meandering heater paths (6A, 6B)
4 electrically connected in series with each other by said
5 intermediate heater portion (6C), and wherein said two
6 temperature sensing conductor paths (12A, 12B) are
7 connected to said intermediate heater portion (6C) through
8 said two respective contact points (12A', 12B') which are
9 spaced from each other along said intermediate heater
10 portion (6C).

1 **49.** (new) The gas sensor of claim 45, wherein said electrical
2 heater (6) comprises an intermediate heater portion (6C)
3 and at least two meandering heater paths (6A, 6B)
4 electrically connected in series with each other by said
5 intermediate heater portion (6C), wherein one of said two
6 temperature sensing conductor paths (12A) is connected to
7 one of said at least two meandering heater path (6A), and
8 wherein the other temperature sensing conductor path (12B)
9 is connected to said intermediate heater portion (6C),
10 through a respective contact point of said two contact
11 points (12A', 12B').

1 **50.** (new) The gas sensor of claim 45, wherein said electrical
2 heater (6) comprises an intermediate heater portion (6C)
3 and at least two meandering heater paths (6A, 6B)
4 electrically connected in series with each other by said
5 intermediate heater portion (6C), wherein one of said two

6 temperature sensing conductor paths (12A) is connected to
7 one of said at least two meandering heater path (6A), and
8 wherein the other temperature sensing conductor path (12B)
9 is connected to the other meandering heater path (6B),
10 through a respective contact point of said two contact
11 points (12A', 12B').

1 51. (new) The gas sensor of claim 50, wherein at least one of
2 said two contact points (12B') comprises a plurality of
3 voltage taps at different locations (13), and wherein said
4 voltage taps are adapted to being individually severed for
5 selecting a desired resistance value through one remaining
6 voltage tap.

[RESPONSE CONTINUES ON NEXT PAGE]